



Ahmed 3-39-39-3-13

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Application

Applicant(s): Walid Ahmed et al.
Case: Ahmed 3-39-39-3-13
Serial No.: 09/191,132
Filing Date: November 13, 1998
Group: 2666
Examiner: Shick C. Hom

I hereby certify that this paper is being deposited on this date with the U.S. Postal Service as first class mail addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Signature: *Lisa L. Vulpis* Date: March 1, 2004

Title: Addressing Scheme for a Multimedia
Mobile Network

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SUPPLEMENTAL APPEAL BRIEF

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313

Sir:

Applicants (hereinafter referred to as "Appellants") hereby appeal the rejection of claims 1, 3-5 and 12-20 of the above referenced application.

REAL PARTY IN INTEREST

The present application is assigned to Lucent Technologies Inc., as evidenced by an assignment recorded January 7, 1999 in the U.S. Patent and Trademark Office at Reel 9698, Frame 0131. The assignee, Lucent Technologies Inc., is the real party in interest.

RELATED APPEALS AND INTERFERENCES

There are no known related appeals and interferences.

STATUS OF CLAIMS

Claims 1, 3-6 and 8-20 are pending in the present application. Claims 6 and 8-11 are allowed. Claims 1, 3-5 and 12-20 stand rejected under 35 U.S.C. §103(a). Claims 1, 3-5 and 12-20 are appealed.

STATUS OF AMENDMENTS

There have been no amendments filed subsequent to the rejection.

SUMMARY OF INVENTION

The present invention relates to mobile communication systems and, more particularly, to mobility management techniques in such systems that may include multimedia applications in a highly dynamic networking environment (Specification, page 1, lines 13-15). The present invention provides a network architecture, an addressing scheme, and various mobility management methodologies, as well as apparatus for implementing them in a packet-based mobile communications system, which are capable of supporting various voice and data service including, for example, multimedia services (Specification, page 5, lines 5-8).

The addressing scheme of the present invention alleviates a mobile user station from needing to be concerned with the mobility of other mobile user stations within the system. While the overall address of a mobile station may change due to the fact that it may become associated with a different network node, or a mobile station may have more than one address if it is associated with more than one network node, a correspondent mobile station is still able to send and receive packets to and from the initiating mobile station since the identifier of a mobile station remains the same (Specification, page 6, lines 7-14). The present invention is an exemplary packet based wireless communications system in which not only are end user terminals mobile, but in which system access points, referred to hereinafter as network nodes, are also mobile (Specification, page 8, lines 26-28).

By way of example, as recited in claim 1, a method for use in a mobile user station of a packet-based multiaccess communications system may comprise the following steps. First, an address is assigned to be associated with one or more packets of the mobile user station. The address is a combination of an identifier of the mobile user station and an identifier of a network node in the

communications system with which the mobile user station is currently associated. Second, another address is automatically reassigned to be associated with the one or more packets of the mobile user station when the station becomes associated with another network node of the communications system. The other address is a combination of the identifier of the mobile user station and an identifier of the other network node. A network node in the communications system is not required to obtain additional address information to direct a packet associated with a call to or from the mobile user station.

As a further example, as recited in claim 12, a method for use in a network node of a packet-based multiaccess communications system, the communications system including a plurality of mobile user stations, comprises the following steps. First, an address is assigned to the network node. The address is a combination of an identifier of the network node and an identifier of an interface associated with the network node. Second, packets are transferred to and from the network node in accordance with the address. The network node is able to move within the communications system in addition to the plurality of mobile user stations.

A diagram of a mobile communications system, according to an embodiment of the present invention, is shown in FIG. 1. This diagram illustrates mobile end users, network nodes, links and an internode network (Specification, page 9, line 13, through page 10, line 22). A diagram illustrating a network architecture of a mobile communications system, according to an embodiment of the present invention, is shown in FIG. 3A. This diagram illustrates components of the mobile end users and network nodes, which comprise, for example, a medium access control layer (Specification, page 11, line 9, through page 12, line 13). Flow charts illustrating mobile access methods, according to embodiments of the present invention, are shown in FIGS. 5A through 5C (Specification, page 23, line 1, through page 25, line 2).

ISSUES PRESENTED FOR REVIEW

1. Whether claims 1, 3-5 and 12-20 are properly rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,389,023 to Matsuzawa et al. (hereinafter "Matsuzawa") in view of U.S. Patent No. 6,411,632 to Lindgren et al. (hereinafter "Lindgren").

GROUPING OF CLAIMS

Claims 1, 3-5 and 12-20 do not stand or fall together. More particularly, claims 1, 3 and 4 stand or fall together, claim 5 stands or falls on its own, and claims 12-20 stand or fall together.

ARGUMENT

Appellants incorporate by reference herein the disclosure of all previous responses filed in the present application, namely, responses dated April 5, 2002, November 19, 2002, and June 11, 2003, and an Appeal Brief dated August 13, 2003.

With regard to the issue of whether claims 1, 3-5 and 12-20 are properly rejected under 35 U.S.C. §103(a) as being unpatentable over Matsuzawa and Lindgren, the Office Action contends that Matsuzawa discloses all of the claim limitations recited in the subject claims except the automatic reassignment of another address to be associated with the packets of the mobile user station when the station becomes associated with another network node, and the network node being able to move within the system, which are both allegedly taught by Lindgren. Appellants respectfully assert that the combination of Matsuzawa and Lindgren fails to establish a prima facie case of obviousness under 35 U.S.C. §103(a), as specified in M.P.E.P. §2143.

As set forth therein, M.P.E.P. §2143 states that three requirements must be met to establish a prima facie case of obviousness. First, there must be some suggestion or motivation to combine reference teachings. Second, there must be a reasonable expectation of success. Third, the cited combination must teach or suggest all the claim limitations. While it is sufficient to show that a prima facie case of obviousness has not been established by showing that one of the requirements has not been met, Appellants respectfully believe that none of the requirements have been met.

First, there is a clear lack of motivation to combine the references. Appellants assert that no motivation or suggestion exists to combine Matsuzawa and Lindgren in a manner proposed by the Examiner, or to modify their teachings to meet the claim limitations. For at least this reason, a prima facie case of obviousness has not been established. Appellants strongly believe that one ordinarily skilled in the art would not look to Lindgren's network hub for interconnecting a wireless office environment with a public cellular telephone network to modify Matsuzawa's router device and datalink layer frame switching transfer method, or vice versa. That is, the teachings in each

reference are directed to completely different environments; one (Matsuzawa) toward a router device and frame transfer method for interconnecting Ethernets, the other (Lindgren) toward an interconnected wireless office/public cellular telephone environment. However, other than a very general and conclusory statement in the Office Action, there is nothing in the two references that reasonably suggests why one would actually combine the teachings of these two references.

The Federal Circuit has stated that when patentability turns on the question of obviousness, the obviousness determination “must be based on objective evidence of record” and that “this precedent has been reinforced in myriad decisions, and cannot be dispensed with.” *In re Lee*, 277 F.3d 1338, 1343 (Fed. Cir. 2002). Moreover, the Federal Circuit has stated that “conclusory statements” by an examiner fail to adequately address the factual question of motivation, which is material to patentability and cannot be resolved “on subjective belief and unknown authority.” *Id.* at 1343-1344.

In the Office Action at page 8, the Examiner provides the following statements to prove motivation to combine Matsuzawa and Lindgren, with emphasis supplied:

“The motivation for providing the step of automatically reassigning another address . . . as taught by Lindgren et al. in the communication method of Matsuzawa et al. being that it provides more efficiency for the system since the destination address can be automatically reassigned at the transmitting node when the station becomes associated with another network node;” and

“[t]he motivation for providing the network node that is able to move within the communications system of Matsuzawa et al. being that it provides the desirable added feature of mobility in the system of Matsuzawa et al.”

Appellants submit that this statement is based on the type of “subjective belief and unknown authority” that the Federal Circuit has indicated provides insufficient support for an obviousness rejection. More specifically, the Examiner fails to identify any objective evidence of record which supports the proposed combination.

Second, Appellants assert that there is no reasonable expectation of success in achieving the present invention through a combination of Matsuzawa and Lindgren. For at least this reason, a prima facie case of obviousness has not been established. The Office Action contends that the step of automatically reassigning an address may be implemented into the node that provides the

destination address to the frame header of Matsuzawa et al; and that the step of including a movable network node feature may be implemented into the communication node of Matsuzawa et al. Despite the assertion in the Office Action, Appellants do not believe that Matsuzawa and Lindgren are combinable.

It is not clear how one would combine these references since the features of Lindgren cited by the Examiner relate to a wireless cellular telephone environment and Matsuzawa relates to a router for an Ethernet. More specifically, it is not clear how the automatic address reassignment would be incorporated into a node of Matsuzawa; and it is not clear what nodes are able to move in Matsuzawa, since the movement of a network node in a wireless environment would differ significantly from a moving node in an Ethernet system such as the system of Matsuzawa. There is no further guidance provided in the Office Action. However, even if combined, for the sake of argument, they would not achieve the unique addressing techniques of the claimed invention.

Third, Appellants assert that even if combined, the Matsuzawa/Lindgren combination fails to teach or suggest all of the limitations of claims 1, 3-5 and 12-20. For at least this reason, a prima facie case of obviousness has not been established.

Appellants assert that claims 1, 3 and 4 are patentable for at least the reasons that independent claim 1, from which claims 3 and 4, directly depend, is patentable.

The present invention as recited in independent claim 1, recites a method for use in a mobile user station of a packet-based multiaccess communications system, comprising the following steps: (i) assigning an address to be associated with one or more packets of the mobile user station, the address being a combination of an identifier of the mobile user station and an identifier of a network node in the communications system with which the mobile user station is currently associated; and (ii) automatically reassigning another address to be associated with one or more packets of the mobile user station when the station becomes associated with another network node of the communications system, the other address being a combination of the identifier of the mobile user station and an identifier of the other network node; such that a network node in the communications system is not required to obtain additional address information to direct a packet associated with a call to or from the mobile user station.

Matsuzawa discloses a router device and frame transfer method for Ethernet systems. Lindgren discloses a network hub for interconnecting a wireless office environment with a public cellular telephone network.

The Office Action cites FIGS. 1A-E and column 4, line 33, to column 5, line 30 of Matsuzawa for support in rejecting (under the Matsuzawa/Lindgren combination) the step/operation of "assigning an address to be associated with one or more packets of the mobile user station, the address being a combination of an identifier of the mobile user station and an identifier of a network node in the communications system with which the mobile user station is currently associated," as recited in independent claims 1. However, Matsuzawa fails to disclose what the Office Action asserts.

In particular, the Office Action cites a section of Matsuzawa referring to a MAC address format used for "cut-through transfer." A value understood over all networks in advance as indicating a cut-through transfer is entered as a cut-through vendor identifier, making it possible for each node to judge whether a cut-through transfer should be carried out. A cut-through node identifier identifies a node within each network in the case of carrying out a cut-through transfer. Each node is assigned an ordinary node identifier and a cut-through node identifier.

The present invention discloses a new protocol layer as part of a protocol stack associated with a packet-based multiaccess mobile communications system. The protocol layer is preferably located above a MAC protocol layer and a physical protocol layer of the system and below a transport/network protocol layer, thus providing various mobility management functions. Claim 1 calls for "an address to be associated with one or more packets of the mobile user station, the address being a combination of an identifier of the mobile user station and an identifier of a network node in the communications system with which the mobile user station is currently associated."

Matsuzawa does not disclose an address assigned to one or more packets of a mobile user station. Further, the vendor identifier of Matsuzawa is not the same as an identifier of the mobile user station. It is not clear how the Office Action equates a cut-through vendor identifier, which judges whether a cut-through transfer should be performed, with a mobile user station identifier, which identifies the mobile user station associated with the one or more packets to which the address

is assigned. Additionally, Matsuzawa fails to disclose the identification of a network node in the communications system with which the mobile user station is currently associated.

Next, the Office Action cites column 5, line 37, to column 6, line 20 of Lindgren for support in rejecting (under the Matsuzawa/Lindgren combination) the step/operation of “automatically reassigning another address to be associated with one or more packets of the mobile user station when the station becomes associated with another network node of the communications system, the other address being a combination of the identifier of the mobile user station and an identifier of the other network node . . . such that a network node in the communications system is not required to obtain additional address information to direct a packet associated with a call to or from the mobile user station,” as recited in independent claim 1. Appellants believe that the Office Action misinterprets the claimed feature.

By way of example, the present specification explains at page 29, lines 3-11:

It is to be appreciated that one of the advantages of the addressing scheme of the invention, described above, is that the SNLA [subnetwork layer address] itself indicates the relative location of a mobile. Therefore, if a mobile moves (i.e., attaches itself to a new network node) during a call, it automatically changes the source address to the new SNLA in its packets. Since the correspondent mobile can recognize the mobile from the mobile ID portion of the SNLA, it knows that the mobile has changed its location. Therefore, the correspondent mobile stamps the destination field of its packets with the new SNLA. Without extra signaling messages, mobile locations are updated during a call. Since the system 100 is a packet-switched network and each packet is routed directly to the destination, the route is optimized automatically as well. This feature reduces the amount of signaling traffic significantly since a majority of the traffic, such as TCP/IP connections and voice calls, are two-way traffic (Underlining added for emphasis).

Thus, in accordance with the claimed invention, the mobile user station performs the automatic reassigning step/operation. To the contrary, in Lindgren, an HLR 22 (home location register) informs a network hub 38 that a mobile is no longer registered with a “wireless office.” The network hub 38 updates a translation table 70 and then notifies HLR 22. This is not necessary in the invention of claim 1, since the mobile itself is able to automatically reassign its address and thereby inform the communications system of its new address by transmitting packets with the reassigned address as the source address. In this manner, a network node in the communications system is

therefore not required to obtain additional address information to direct a packet associated with a call to or from the mobile user station. This may further be facilitated by a correspondent mobile stamping the destination field of its packets with the new SNLA (address) reassigned by the source mobile. The proposed Matsuzawa/Lindgren combination fails to teach or suggest such a dynamic addressing scheme.

Additionally, allowable independent claim 6 recites an apparatus based aspect of the invention having similar limitations to independent claim 1. Thus, claims 1, 3 and 4 are patentable for the same reasons as allowable independent claim 6. Accordingly, Appellants assert that claims 1, 3 and 4 are patentable over the cited combination and therefore allowable.

The present invention as recited in independent claim 5, recites a method for use in a mobile user station of a packet-based multiaccess communications system, comprising the steps of: (i) assigning an address to the mobile user station, the address being a combination of an identifier of the mobile user station and an identifier of a network node in the communications system with which the mobile user station is currently associated; and (ii) transferring packets to and from the mobile user station in accordance with the address, such that a network node in the communications system is not required to obtain additional address information to direct a packet to and from the mobile user station; wherein the address of the mobile user station further includes an application flow identifier, and further wherein the address of the mobile user station is a concatenation of the identifiers of the network node, the mobile user station and the application flow.

The Office Action fails to address all of the limitations of claim 5. However, the combination of Matsuzawa and Lindgren fails to disclose the assigning of an address to the mobile user station, wherein the address comprises an identifier of the mobile user station and an identifier of a network node in the communications system with which the mobile user station is currently associated. Further, the combination of Matsuzawa and Lindgren fails to disclose the transferring of packets to and from the mobile user station in accordance with the address.

Additionally, allowable independent claim 10 recites an apparatus based aspect of the invention having similar limitations to independent claim 5. Thus, claim 5 is patentable for the same reasons as allowable independent claim 10. Accordingly, Appellants assert that claim 5 is patentable over the cited combination and therefore allowable.

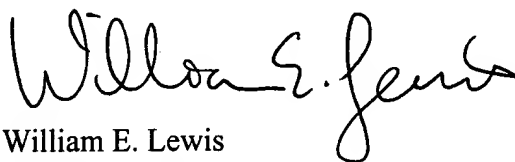
Appellants assert that claims 12-20 are patentable for at least the reasons that independent claims 12, 15, 16 and 19, from which claims 13, 14, 17, 18 and 20 depend, are patentable.

The present invention as recited in independent claim 12, recites a method for use in a network node of a packet-based multiaccess communications system, the communications system including a plurality of mobile user stations, comprising the following steps: (i) assigning an address to the network node, the address being a combination of an identifier of the network node and an identifier of an interface associated with the network node; and (ii) transferring packets to and from the network node in accordance with the address, such that the network node is able to move within the communications system in addition to the plurality of mobile user stations. Independent claim 16 recites an apparatus-based aspect of the invention having similar limitations. Independent claims 15 and 19 recite a method claim and an apparatus claim, respectively, that recite the limitations of claim 12 as well as the limitation of an application flow identifier.

The limitations of independent claims 12, 15, 16 and 19 are not addressed in the Office Action. However, the combination of Matsuzawa and Lindgren fails to disclose an address assigned to a network node comprising a combination of an identifier of the network node and an identifier of an interface associated with the network node. Further, the combination of Matsuzawa and Lindgren fails to disclose the transferring of packets to and from the network node in accordance with this address. Accordingly, Appellants assert that claims 12-20 are patentable over the cited combination and therefore allowable.

For at least the reasons given above, Appellants respectfully request withdrawal of the 103(a) rejection of claims 1, 3-5 and 12-20. Appellants believe that claims 1, 3-5 and 12-20 are patentable over the combination of Matsuzawa and Lindgren. As such, the application is asserted to be in condition for allowance, and favorable action is respectfully solicited.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "William E. Lewis". The signature is fluid and cursive, with the first name "William" being the most prominent part.

Date: March 1, 2004

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APPENDIX

1. A method for use in a mobile user station of a packet-based multiaccess communications system, comprising the steps of:

assigning an address to be associated with one or more packets of the mobile user station, the address being a combination of an identifier of the mobile user station and an identifier of a network node in the communications system with which the mobile user station is currently associated; and

automatically reassigning another address to be associated with one or more packets of the mobile user station when the station becomes associated with another network node of the communications system, the other address being a combination of the identifier of the mobile user station and an identifier of the other network node;

such that a network node in the communications system is not required to obtain additional address information to direct a packet associated with a call to or from the mobile user station.

3. The method of Claim 1, wherein the identifier of the mobile user station is a medium access control address of the station.

4. The method of Claim 1, wherein the address of the mobile user station further includes an application flow identifier.

5. A method for use in a mobile user station of a packet-based multiaccess communications system, comprising the steps of:

assigning an address to the mobile user station, the address being a combination of an identifier of the mobile user station and an identifier of a network node in the communications system with which the mobile user station is currently associated; and

transferring packets to and from the mobile user station in accordance with the address, such that a network node in the communications system is not required to obtain additional address information to direct a packet to and from the mobile user station;

wherein the address of the mobile user station further includes an application flow identifier,

and further wherein the address of the mobile user station is a concatenation of the identifiers of the network node, the mobile user station and the application flow.

12. A method for use in a network node of a packet-based multiaccess communications system; the communications system including a plurality of mobile user stations, comprising the steps of:

assigning an address to the network node, the address being a combination of an identifier of the network node and an identifier of an interface associated with the network node; and

transferring packets to and from the network node in accordance with the address, such that the network node is able to move within the communications system in addition to the plurality of mobile user stations.

13. The method of Claim 12, wherein the interface identifier is a data link address.

14. The method of Claim 12, wherein the address of the network node further includes an application flow identifier.

15. A method for use in a network node of a packet-based multiaccess communications system, the communications system including a plurality of mobile user stations, comprising the steps of:

assigning an address to the network node, the address being a combination of an identifier of the network node and an identifier of an interface associated with the network node; and

transferring packets to and from the network node in accordance with the address, such that the network node is able to move within the communications system in addition to the plurality of mobile user stations;

wherein the address of the network node further includes an application flow identifier, and further wherein the address of the network node is a concatenation of the identifiers of the network node, the interface of the network node and the application flow.

16. Apparatus in a packet-based multiaccess communications system, the communications system including a plurality of mobile user stations, comprising:

a network node configured to respond to an address assigned to the network node, the address being a combination of an identifier of the network node and an identifier of an interface associated with the network node such that packets are transferred to and from the network node in accordance with the address, and the network node is able to move within the communications system in addition to the plurality of mobile user stations.

17. The apparatus of Claim 16, wherein the interface identifier is a data link address.

18. The apparatus of Claim 16, wherein the address of the network node further includes an application flow identifier.

19. Apparatus in a packet-based multiaccess communications system, the communications system including a plurality of mobile user stations, comprising:

a network node configured to respond to an address assigned to the network node, the address being a combination of an identifier of the network node and an identifier of an interface associated with the network node such that packets are transferred to and from the network node in accordance with the address, and the network node is able to move within the communications system in addition to the plurality of mobile user stations;

wherein the address of the network node further includes an application flow identifier, and further wherein the address of the network node is a concatenation of the identifiers of the network node, the interface of the network node and the application flow.

20. The apparatus of Claim 16, wherein the network node is further configured for supporting a protocol layer, the protocol layer being located above a medium access control layer in a protocol stack associated with the communications system and providing support to applications associated with the communications system with respect to mobility of a user station.